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Thomas Mattes

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10/04/2010

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EXAMINER

KENNEDY, TIMOTHY J

ART UNIT

PAPER NUMBER

1791

MAIL DATE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/523,558 | Applicant(s) MATTES, THOMAS | |
| | Examiner TIMOTHY KENNEDY | Art Unit 1791 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 30-93 is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30,34,37,40,43,46,49,52,55,58,61,64,67,70,and 73 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Continuation of Disposition of Claims: Claims withdrawn from consideration are 31-33,35,36,38,39,41,42,44,45,47,48,50,51,53,54,56,57,59,60,62,63,65,66,68,69,71,72 and 74-93.

DETAILED ACTION

Response to Amendment

1. By way of the amendment filed 8/30/2010: claims 1-29 are canceled, claims 30, 40, 43, 58, 67, and 70 are amended, and the remainder are withdrawn.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Examiner wishes to point out to applicant that claims 30, 34, 37, 40, 43, 46, 49, 52, 55, 58, 61, 64, 67, 70, and 73 are directed towards an apparatus and as such will be examined under such conditions. The material worked upon or the process of using the apparatus is viewed as recitation of intended use and is not given patentable weight (Please see MPEP 2114 R1-2115 R2 for further details).

4. Claims 30, 34, 37, 40, 43, 52, 55, 58, 64, 67, 70, and 73 are rejected under 35 U.S.C. 102(b) as being anticipated by Exner (DE 19952998, already of record, using machine translation provided by Applicant as English equivalent). Regarding claim 30, Exner teaches:

5. Apparatus for manufacturing a three-dimensional object by a generative manufacturing method, wherein the object is manufactured in a vertical direction layer-wise from a building material (Figure 1)

6. A support (Figure 1, parts 9a)

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7. A material application device for applying layers of a building material onto a support or a layer (Figures 1 and 2, parts 7, 7a, and 7b)
8. A solidification device for solidifying the applied layer in a solidification region in order to interconnect the applied layer with a layer, which was applied before, at positions corresponding to a cross-section of the object (The arrangement for solidifying is considered the laser system, that is the structural limitation, and is capable of performing the there-after claimed function, which is melting the material, turning off and thus letting the melted material solidify: page 12, fourth and fifth paragraphs, or page 16 third through fifth paragraphs)
9. A drive connected to at least one of said material application device and said support, (A drive is inherently connected to either the applicator or support since movement of both is generated. The structural limitation is a drive connected to the material applicator or the support, the remainder of the claim is the intended use) wherein the drive functions to generate a relative movement of said material application device and said support with respect to each other
10. A controller connected to said solidification device and said drive (page 12, bottom paragraph of machine translation), characterized in that said controller is configured to control said solidification device and said drive such that, during the action of said solidification device on said building material in said solidification region, said drive is generating a relative movement of said material application device and said support with respect to each other, wherein the relative movement that is generated by the drive is a rotational movement with feed in the direction of the axis of rotation (The

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steps as laid out in the First Embodiment, pages 11-12 or The steps as laid out in the Third Embodiment, page 15 of the English translation and Figure 1, parts 3, 4, 7, 9a, 9b, and 10. The action of the solidification device is two fold: while it is on it melts, and while it is off solidification occurs. Thus while the laser is off, solidification is occurring, during which time a relative movement between the material applicator and the support is made since a new layer of material is being applied by the material applicator and the support is lowering in order to accommodate the new layer)

11. Regarding claim 34, Exner teaches:

12. The feed is carried out continuously or in steps (The steps as laid out in the First Embodiment, pages 11-12 or The steps as laid out in the Third Embodiment, page 15 of the English translation)

13. Regarding claim 37, Exner teaches:

14. The support and the material application device are moveable in such a way, that in a complete rotation the support departs from the material application device by an amount of a thickness of one layer (The steps as laid out in the First Embodiment, pages 11-12 or The steps as laid out in the Third Embodiment, page 15 of the English translation: the material application device rotates in said manner)

15. Regarding claim 40, Exner teaches:

16. The support moves and the material application device and the solidification device for interconnecting the layers are stationary (The steps as laid out in the First Embodiment, pages 11-12 or The steps as laid out in the Third Embodiment, page 15 of the English translation)

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17. Regarding claim 43, Exner teaches:

18. The support is stationary and the material application device and the solidification device for interconnection move (The steps as laid out in the First Embodiment, pages 11-12 or The steps as laid out in the Third Embodiment, page 15 of the English translation)

19. Regarding claim 52, Exner teaches:

20. Several solidification regions are provided (Figure 1, part 1: the multiple layers are the several solidification regions)

21. Regarding claim 55, Exner teaches:

22. Several supports are provided (Figure 2, parts 3a and 3b)

23. Regarding claim 58, Exner teaches:

24. The feeds of the several supports can be controlled independently (First Embodiment, or Third Embodiment of English translation)

25. Regarding claim 64, Exner teaches:

26. Several material application devices are provided (Third Embodiment, page 15, above the steps: "cover plates 7a, 7b with the doctors)

27. Regarding claim 67, Exner teaches:

28. Wherein to each solidification region there is assigned an solidification device for interconnection of the applied layer to a layer, which was applied before (First Embodiment or Third Embodiment of English translation)

29. Regarding claim 70, Exner teaches:

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30. The building material is in form of powder and the solidification device for interconnection of the applied layer to a layer of the building material, which was applied before, is preferably a laser for sintering the powder or an arrangement for solidification of the powder by a glue (First Embodiment or Third Embodiment of English translation)

31. Regarding claim 73, Exner teaches:

32. The support is part of a container for accommodating the building material (Figure 1, parts 2, 4, 9b, and 10)

Claim Rejections - 35 USC § 103

33. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

34. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

35. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

36. Claims 46 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Exner, in view of Kubo et al (U.S. PGPub 2001/0050448, already of record, herein after referred to as Kubo). Regarding claims 46 and 49, Exner does not teach:

37. Claim 46) The velocity and/or the feed in direction of the axis of rotation can be varied

38. Claim 49) The circumferential velocity of the rotational movement can be varied.

39. In the same field of endeavor Kubo teaches, varying the speed at which the material is applied by adjust the speed of the applicators rotation (paragraphs 0108 and 0115). This creates a more even layer.

40. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the variable speeds as taught by Kubo, using the Exner apparatus, since doing so would produce a more even powder layer, thus producing a better product.

41. Claim 61 is rejected under 35 U.S.C. 103(a) as being unpatentable over Exner, in view of Masters (U.S. Patent 5,134,569). Regarding claim 61, Exner does not teach:

42. The supports make a rotational movement on a non-circular path, preferably a polygon with n corners, for the case that n supports are provided.

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43. In the same field of endeavor Masters teaches placing the building area (i.e. the supports) on a two axis slide system. This would allow the user to create a non-circular rotational movement during the creation of the model.

44. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the two axis slide system as taught by Masters using the Exner apparatus, since doing so would allow precise movements to create objects where tight volumetric tolerances are needed.

Response to Arguments

45. Applicant's arguments filed 8/30/2010 have been fully considered but they are not persuasive.

46. Applicant argues that it is clearly set out in the claims (i.e. claim 30) that there is a relative movement during the action of the solidification device.

47. The Examiner agrees and disagrees.

48. The Examiner agrees, since the action of the solidification device is two fold: while it is on it melts, and while it is off solidification occurs. Thus while the laser is off, solidification is occurring, during which time a relative movement between the material applicator and the support is made since a new layer of material is being applied by the material applicator and the support is lowering in order to accommodate the new layer. However, this is taught by Exner as previously discussed.

49. However the Examiner disagrees since this is the function of the apparatus and does not distinguish over the prior art structurally. Also this language is not properly claimed in claim 30. In the Examiner's interpretation there is a difference between the

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action of the solidification device (which includes while it is on and off, as previously discussed) and what happens while the solidification device is melting the applied material.

50. Applicant also again argues about the relative movement between the material application device and the support.

51. Exner teaches that the support and material application device are capable of such relative movement, since in the steps provided in the first and third embodiments, the application device rotates relative to the support, during the solidification of the layer. See previous interpretation of solidification device. And finally the application device rotates relative to the layer which was applied before, since the application device needs to rotate to apply a new layer, which is in a feed direction due to the rotation around the axis of rotation as shown in Figures 1 and 2.

52. Claiming a relative movement between two or three objects means that any of the three objects can move. However it appears that the Applicant is arguing that the support is what rotates while the laser is in operation (i.e. melting the applied material in the zone), which are unclaimed features, due to the interpretation of the solidification device previously discussed.

Conclusion

53. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMOTHY KENNEDY whose telephone number is (571) 270-7068. The examiner can normally be reached on Monday to Friday 9:00am to 6:00pm (Personal fax number 571-270-8068).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Del Sole can be reached on (571) 272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

tjk

/Joseph S. Del Sole/
Supervisory Patent Examiner, Art Unit 1791